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Cover page

Machines have now taken over the job of breaking eggs to separate the white from the yolk. While the egg-breaking machine shown on the cover is not practical for homemakers, it is very popular with egg processors who sell their products to large-volume users such as bakeries and manufacturers of mayonnaise and macaroni. The machine can take the shells off of nine dozen eggs in a minute.

The modern egg breaking plant shown on the cover operates under USDA's Egg Products Inspection Program. This service, conducted by the Poultry Division of USDA's Agricultural Marketing Service, certifies that egg products are prepared from wholesome materials and under sanitary conditions. More than one hundred processors now use this inspection service.

Editor, MILTON HOFFMAN

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Hottest item in Cold Storage... FROZEN VEGETABLES

By MELVIN R. BANKS

THE "hottest" thing in cold storage is frozen vegetables. They have set the pace for the booming frozen foods industry, and they occupy an increasing share of the rapidly growing freezer space.

In 1941, the average American ate only seven-tenths of a pound of frozen vegetables; by 1961, this had multiplied about 15-fold, to about 11 pounds per person. The vegetable freezing industry boosted its production during the same time from 106 million to 2.2 billion pounds.

In 1941, the Nation's freezer storage rooms held an average of 74 million pounds of frozen vegetables on the first day of each month. In 1961, the monthly vegetable stocks averaged more than a billion pounds, about 31 percent of the total weight of frozen food in storage.

During 1961, total holdings of frozen vegetables reached an all time high of 1.3 billion pounds. New storage records were set for frozen lima beans, green beans, broccoli, carrots, cauliflower, corn, peas, spinach, and French fried potatoes.

The year also produced the high mark for stocks of several other items:

599 million pounds of frozen fruits, including record stocks of blueberries and cherries.

550 million pounds of frozen poultry, of which a record 382 million pounds were turkeys.

50 million gallons of frozen orange concentrate.

These and the other food inventories in both cooler and freezer rooms on November 1 made up the largest product weight ever stored under refrigeration at one time—almost 8 billion pounds. As a matter of fact, during most of 1961, holdings were at new high levels for the date, averaging 5.5 billion pounds per month.

This was 11 percent larger than the average monthly level during 1960 and 12 percent greater than the average of the previous 5 years.

Most of the changes that have taken place in the food warehousing industry since the end of World War II are the result of the frozen food "explosion," the acceptance of frozen foods and the demand created for a whole host of "convenience foods."

In earlier years, the industry had little need for freezer space. Most of the products in refrigerated storage, such as fresh fruits, shell eggs, and cured

meats, needed temperatures in the range of 30° F. and above.

This pattern changed with the advent of frozen foods. The new products needed temperatures of 0° and below. In some instances, cooler space was converted to freezer space. But in the main, the freezer space was built new. From 1941 to 1959, freezer space increased about 326 percent, while the amount of cooler space decreased 27 percent. Refrigerated space had been concentrated near the consuming centers; much of the new freezer space has been built in producing areas.

Twenty years ago, the typical item of food in refrigerated storage remained there about 8 months. Now, the average term of storage is only 3 to 4 months because many seasonal peaks of production have been leveled out.

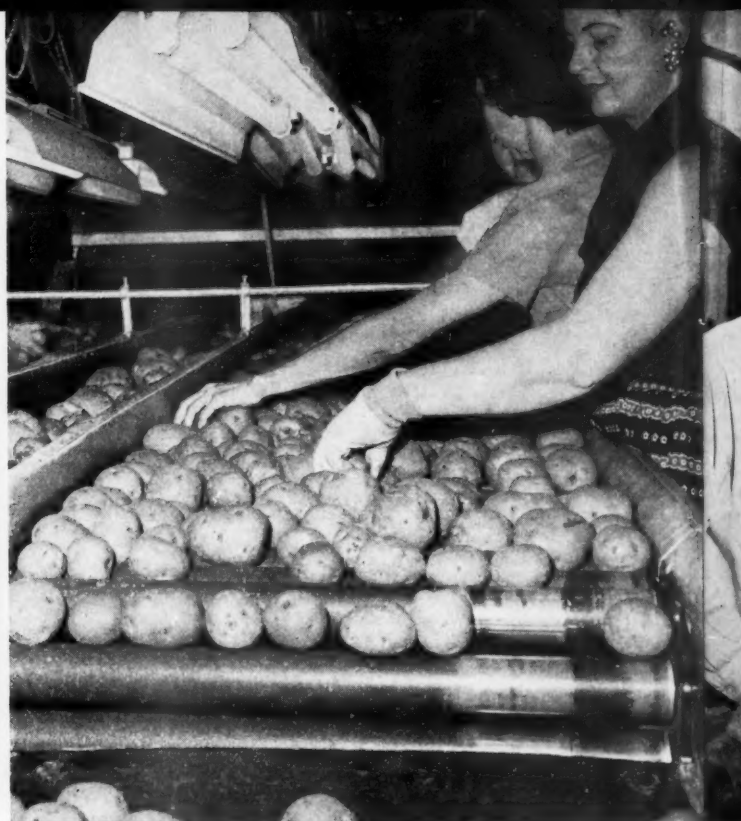
Strawberries, for example, are harvested and frozen during several months of the year. Many vegetables are harvested and frozen in the North in summer and the South in winter. Broiler chickens are produced in heavy volume throughout the year. Meat animals are marketed more evenly; increased production at other seasons has reduced the springtime peaks.

The picture of our stored food supply is subject to constant change, with each item following a seasonal pattern of increase or decrease which has become fairly well defined. The rate at which stocks build up, the height they reach, and the rate at which they move out depend on many different considerations: acreage, volume of production, and the economic forces operating in the market place. All of these factors have a profound influence on prices.

Cold Storage Report Tells All

The Cold Storage Report, issued on the 15th of each month by USDA's Statistical Reporting Service, is the projector which reveals and illuminates the moving picture of our food supplies and notes any departures from the customary patterns of the 80 most important items. In recent years, frozen vegetables have emerged as the star of frozen food production. If a new star appears, the Cold Storage Report will have it in the spotlight.

The author is a staff member of the Statistical Reporting Service, United States Department of Agriculture.



Potatoes are dumped into a water-filled receiving vat at a packing shed. Graders remove off-quality potatoes. Under the proposed national potato marketing order, regulations could set grade, size, quality, and maturity requirements for potatoes marketed.

National Potato Advisory Committee Recommends:

By EDWARD E. GALLAHUE

A PUBLIC hearing is being conducted during March and April on a proposed national marketing order for potatoes. The hearing was begun in New York City on March 12 and will be continued in Toledo, Ohio; Minneapolis, Minn.; Pocatello, Idaho; Bakersfield, Calif.; Amarillo, Texas; and Atlanta, Ga.

The national marketing order was proposed by the National Potato Advisory Committee, as one method of stabilizing potato markets and prices. The Committee was originally called by Secretary of Agriculture Orville L. Freeman at the request of industry representatives, to study potato marketing problems and recommend plans for market stabilization.

The Committee drafted the proposed program, which would cover Irish potatoes grown in all the States except

Alaska and Hawaii, and provide authority for both volume and quality regulations on potato marketings. Growers with two or more acres of potatoes would be included, and handlers—anyone who ships or otherwise handles potatoes—would be subject to regulation.

The Committee asked the Secretary of Agriculture to schedule the public hearing on the proposed program.

Although the hearing has been scheduled, the program has not yet been approved by the Secretary. He must decide whether a national potato marketing order should be issued—and make his decision on the basis of the evidence presented at the hearing.

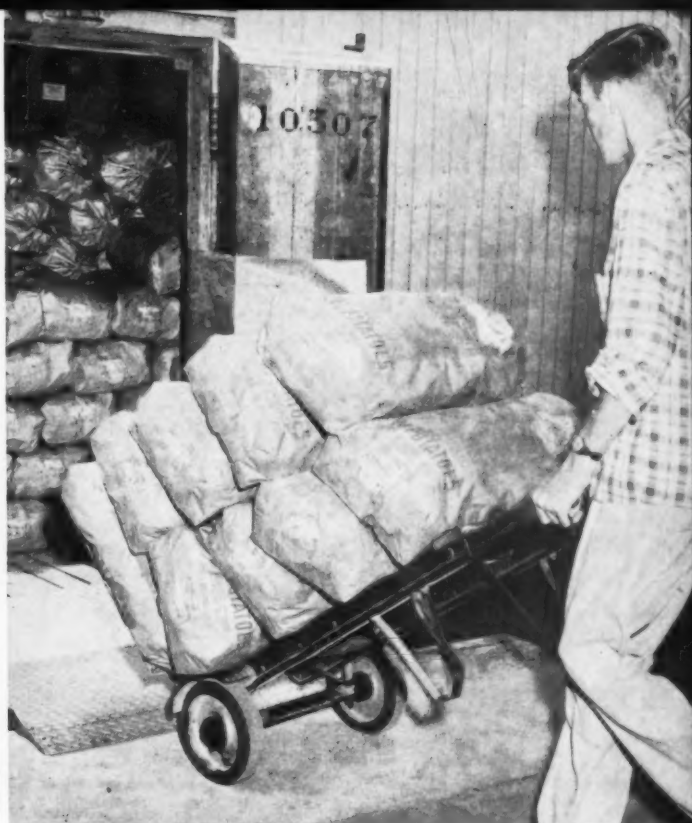
At the hearing, the potato industry is responsible for showing the need for the national marketing order and supporting the provisions of the proposed order with substantial and reliable testimony. All interested parties will be given the opportunity to present evi-

dence both for and against the proposed order at the hearing.

Under the proposed marketing order, regulations would be recommended by a National Potato Administrative Board. The Board would have 43 producer members, nominated by producers and appointed by the Secretary, and three members representing processors, chippers and shippers. Each seasonal group, processors, chippers, and shippers would be represented by committees which would make recommendations to the Board.

Here's how the program proposed by the National Potato Committee could work:

- *Volume regulations are proposed.* The total amount of potatoes which handlers could purchase from growers during a particular season could be regulated on recommendation from the Board. The volume regulations could be based on a historical production



Federal-State inspectors take a sample of potatoes before certifying the grade of the shipment. Inspection could be used on the recommendation of the Board, to check whether shipments meet the regulations in effect if the proposed order is issued.

A NATIONAL MARKETING ORDER FOR POTATOES

period or the quantity currently available for shipment. Each producer would have a particular base, and the amount he could ship would be a percentage of that base.

- *Quality regulations are proposed.* These could set grade, size, quality and maturity requirements for potatoes marketed, with different requirements for different varieties, market outlets and seasonal groups.

- *National cull regulations are also proposed.* These would be part of the Administrative Board's standard marketing policy, and would be in effect at all times unless modified or suspended on the recommendation of the Board. Different cull regulations are proposed for fresh and processing outlets.

- The proposed marketing order also would give authority to standardize packs and to set up marketing research and development projects. It would be financed by assessments on potatoes

handled, and could be enforced through (1) inspection of shipments; (2) performance checks on handlers' certifications of quality; (3) surveys of compliance sponsored by the Board; or (4) a labeling requirement that each package carry its grade, the name and address of the handler, and the State of origin of the potatoes.

After the *hearing* on the proposal has been completed, the Secretary of Agriculture will announce his *recommended decision* on a national marketing order for potatoes. This will not be a final decision, but will outline the issues developed at the hearing and the way they were resolved. If the Secretary recommends a marketing order, the recommended decision will also contain its terms and provisions, as revised on the basis of the hearing evidence. *Exceptions* may be filed to the recommended decision.

After exceptions are analyzed, the fi-

nal decision of the Secretary will be announced. This decision will contain the findings and conclusions on the final terms of the marketing agreement and order, if the Secretary finds an order should be issued.

Growers must approve any marketing order in a *referendum* before it can be issued. If the Secretary finds a program should be issued, a referendum will be held. The order must be favored by two-thirds of the growers voting or two-thirds of the production voted before it can be issued.

More information about the proposed national potato marketing order is contained in a Department bulletin, PA-495. A copy is available from the Marketing Information Division, Agricultural Marketing Service, USDA.

The author is Head, Marketing Agreements Section, Vegetable Branch, Fruit and Vegetable Division, AMS.

Since defective seeds are dyed in the new procedure, seeds can be examined much more quickly than formerly. A magnifying lens is no longer needed for most seeds.

U.S.D.A. marketing researchers develop...

An accurate method for determining seed coat damage

Seeds with cracked coats may be easily eliminated from marketing channels if AMS laboratory tests are adapted to commercial use.

CRACKED seed coats of legumes are a major cause of quality loss in marketing channels. Increased mechanization of harvesting, drying, and handling operations coupled with demands for higher quality, for both seed and processing use, necessitates the development of an accurate method for determining seed coat damage.

Marketing researchers Richard C. French, Judson A. Thompson, and Charles H. Kingsolver of USDA's Agricultural Marketing Service have developed such a method.

Seeds with cracked coats may be easily eliminated if successful AMS laboratory tests are adapted to commercial use. In numerous cases, seed deterioration, seedling vigor, and reduced germination have been related to cracks in seed coats through which water, oxygen, bacteria, and fungi enter to do even greater damage. These conditions have been an important source of customer

dissatisfaction with the seeds they buy.

Large quantities of seed can be tested quickly and inexpensively with the new procedure developed by marketing researchers. Since cracked seeds are dyed in the AMS process, they can be examined much more quickly than formerly, and a magnifying lens no longer is necessary for most seeds.

The new procedure works well with many of the most important kinds of legume seeds, including lima, snap, light kidney and pea beans; crimson, white, and sweet clover; alfalfa; light colored soybeans; and field and garden peas.

Not all legume seeds have been tested with the new process—in some cases simply because they have dark seed coats. The AMS process has been limited to light-colored seeds because indigo, the blue color which is developed does not contrast with dark seed coats.

In this procedure, beans or other legume seeds are tested by immersing them in a solution containing ethyl alcohol and a chemical converted by the seeds to indigo. Peas and soybeans are dipped in the solution for 15 seconds. White beans and other legumes are soaked for one minute, except for the smaller seeds, which are left in the solution for two minutes.

While the seeds are soaking, the solution penetrates any opening in the seed coat. As the solution spreads under the

surface of the cracked seed coat, the chemical is converted enzymatically to indigo.

After an appropriate length of time, the seeds are removed from the solution and dried lightly on paper towels. The development of blue indigo is hastened by exposing the seeds to weak ammonia fumes.

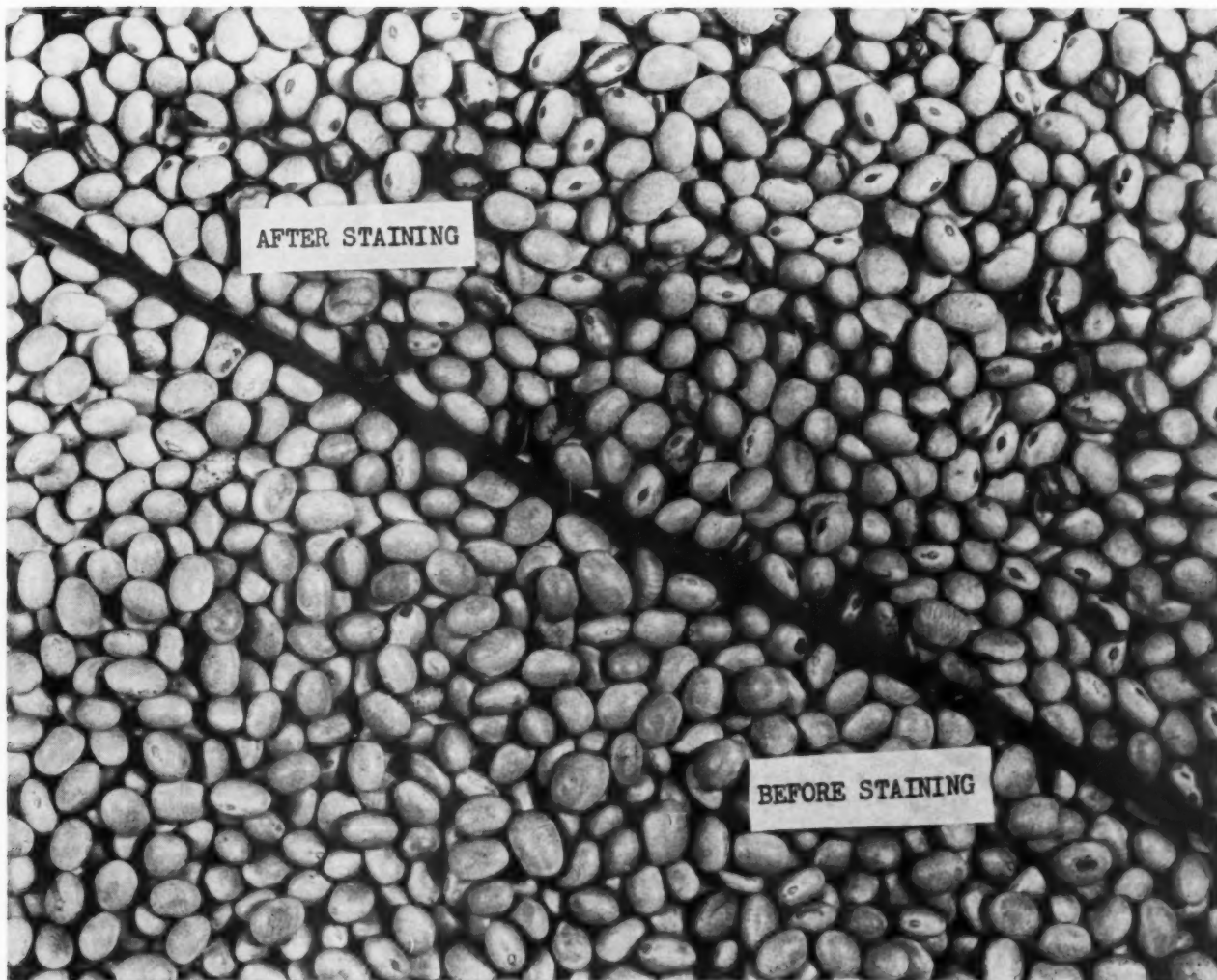
This is accomplished by fastening a wad of cotton to the bottom of a jar, moistening the cotton with ammonium hydroxide, and turning the jar upside down over the seeds for a few seconds.

Seeds with cracked coats turn a conspicuous blue; undamaged seeds retain their natural color since the enzymes necessary to develop the color are located under the seed coat.

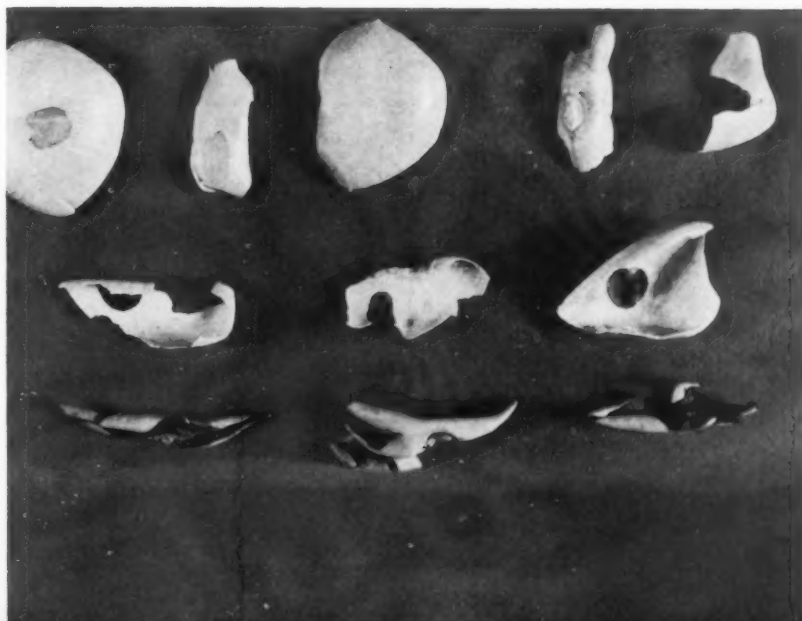
The hilum, or "eye," of some undamaged seeds turns blue but such seeds are easily distinguishable from the damaged beans, which stain blue over areas much greater than the region of the crack.

Marketing researchers found that staining of the embryo made this procedure impractical for use with corn.

However, the color contrast is so sharp in the case of large light-colored legume seeds that a magnifying lens is no longer necessary. With very small seeds, such as clover seed, magnification is still required, but the stain greatly facilitates detection of cracks.



Upper row, droplet of indoxyl acetate placed on outside of seed coat and placed in ammonia fumes for an extended period. Middle row, same as above, except droplets of indoxyl acetate were placed on inside of seed coat. Lower row, portions of seed coats were immersed in indoxyl acetate and treated in the same manner as above.





Unloading at a Kansas egg-breaking plant, which operates under the inspection program.



An employee feeds eggs to the breaking machine, three dozen at a time.



This machine automatically breaks open eggs and separates white part of egg from yolk.



USDA'S Egg Products Inspection Program

*One of the many services performed
by our government to insure a wholesome food supply
for the American consumer*

MANY food manufacturers prefer to buy their eggs dried or frozen rather than in the shell. Dried and frozen eggs are compact and easy to handle. They can be held for some time with very little deterioration.

And most of these manufacturers require that the egg products they buy be prepared in plants operating under USDA's egg products inspection program.

The inspection service, which is conducted by the Poultry Division of USDA's Agricultural Marketing Service, certifies that egg products are prepared from wholesome materials and under sanitary conditions. More than 100 egg processors now use the service.

To be eligible, a plant must first have equipment, facilities, and operating procedures that meet minimum requirements. A resident inspector is then assigned and the entire manufacturing and packing process comes under his continuous supervision.

Only eggs suitable for human con-

sumption may be used in producing frozen or dried egg products under USDA supervision. The eggs are candled to remove those that are inedible, and any that are soiled, cracked, or leaking are sorted out. The edible, clean eggs are sent immediately to the breaking room. Each of these eggs must be broken in a sanitary manner and checked for wholesomeness.

Only plants operating under the continuous inspection program may have their products identified with the official Government inspection mark. And, the labels on which this mark appears must be approved. They must include the common or usual name of the product, the name and address of the packer or distributor, the lot number, net weight, and a list of ingredients.

Costs of the continuous inspection program, which is completely voluntary, are borne by the manufacturing plants requesting the service.

The Poultry Division also offers on a fee basis a laboratory service for egg-processing plants. Lab technicians will make analyses for both chemical and bacteriological factors and will assist plants in maintaining adequate and uniform quality controls.

The egg products inspection program is another of the many services performed by USDA in a never-ending effort to insure a wholesome and safe food supply for the American public.

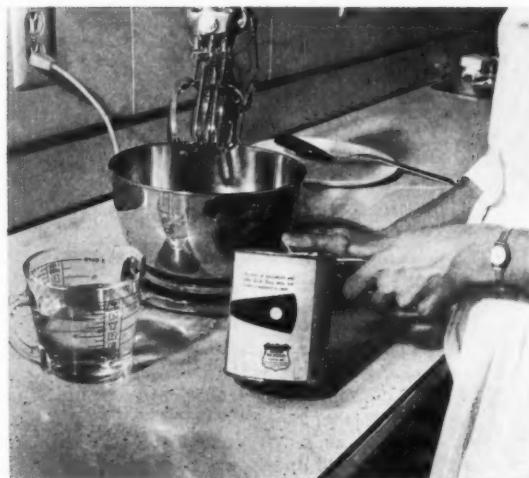
The USDA "Inspected Egg Products" shield is applied on a bulk container after final inspection and prior to shipment.

At the end of the day, the trained inspector prepares his daily report on the plant's operating procedures, sanitation and volume of production.



A USDA resident egg products inspector, who is assigned to this plant, examines a broken out egg to make sure that it is wholesome and suitable for human consumption.

Inspector checks the temperature of liquid egg in a stainless steel coil vat. The temperature of liquid whole egg must be reduced to 45° F. or less, within 1½ hours after breaking.



A plant home economist is preparing scrambled eggs by adding water to the dried egg mixture. The eggs will be checked by a taste panel for appearance, flavor, and texture. Can bears USDA inspection shield, which certifies that the dried egg mixture is wholesome for consumer use.



As part of our country's Food-for-Peace Program,

U. S. Department of Agriculture donates food from our abundant stocks for

School Lunch and Milk Programs in Peru

PERUVIAN school children, unlike their U. S. counterparts, look forward to vacations with mixed emotions. They share the same feelings for their "Three R's," but prefer to stay in school where they can be sure of their noon-day meal—for at home they don't always eat too regularly.

Peru is a country with many areas of extreme poverty. Jobs are scarce, and much of the population is underfed.

To help fill the empty stomachs of school age as well as pre-school youngsters in Peru—and as part of our country's Food for Peace program—the U. S. Department of Agriculture donates food from our abundant stocks.

Under Title 2 of Public Law 480, surplus agricultural commodities are given by the U. S. Government to the Government of Peru. The latest agreement, signed last May 12, sent something like 721,000 pounds of flour, 900,000 pounds of cornmeal, 360,000 pounds of nonfat dry milk, and 225,000 pounds of vegetable shortening to the school lunch program in the Puno area of northern Peru.

Under Title 3 of Public Law 480, the Department of Agriculture donates food for distribution to needy people overseas through U. S. and international voluntary agencies. This year, UNICEF (The United Nations' Children's Fund) will distribute in Peru about 2,088,000 pounds of USDA-donated dry milk to some 189,000 pre-school age and school youngsters.

Today, around 41,420 school youngsters are receiving the benefits of this program which, during the year, will include 5,268,000 pounds of nonfat dry milk, 7,062,000 pounds of flour, about 13,522,000 pounds of cornmeal, and 628,000 pounds of vegetable oils—all products of our agricultural abundance.

There is tremendous need for these

foods in Peru. Its children clamor for the free milk; they fight to get in line for lunch, which may consist of a cup of lentil soup, rice, beans, a sort of cornstarch pudding made with water, and a roll. Mothers, who pass out the food, try to keep the children in line, but they are very hungry.

The same scene is re-enacted daily at milk distribution centers in a dozen areas of Peru. In the Leticia community of Lima, about 225 pounds of nonfat dry milk are distributed every month. This milk is served to the children hot, with a little sugar added.

In Leticia, 212 school children receive milk at the mid-morning break. The only equipment available to prepare the milk is a small kerosene burner to boil the water, one 8-ounce ladle, one pail, one beater, and three large kettles.

A similar feeding program is operated for pre-school age children. A total of 196 children and four adults, who prepare and serve the food, participate.

The residents of Leticia have a wealth of human resources. They are intensely interested in the milk and lunch programs, and they are willing to work hard to make them a success.

But even as late as a year ago, the programs were still handled by makeshift methods. The children did not receive a balanced meal, and the sanitary conditions were questionable.

Lunches were prepared elsewhere in the city and sent in large pails to the base of the hill on which the Leticia school stands. Students hauled these pails of food up a steep dirt path to the schoolyard where—rain or shine—the children stood in line, each with their own plate and spoon.

The need here was obvious, and it was decided that a pilot school lunch program would be inaugurated in Leticia. A lunchroom equipped with tables

and chairs, as well as a kitchen, would be built. And the children would receive a well-balanced, nutritious lunch.

The genuine interest of Peru's community leaders and government officials cleared the way. Help was offered by the Great Plains Wheat, Inc., (a U. S. organization looking for ways to expand the market for wheat) and the U. S. Department of Agriculture.

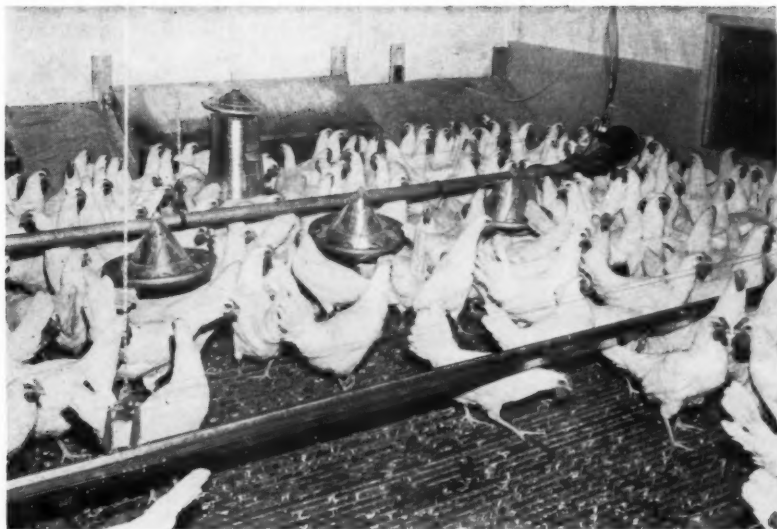
Members of the community raised enough money to build the lunchroom. The U. S. Department of Agriculture agreed to donate whatever foods are available for foreign distribution. And the Peruvian government will make certain other food allocations.

To help set up the lunch program, the U. S. Department of Agriculture last May assigned its nutritionist from the Agricultural Marketing Service's Food Distribution Division, Caribbean area, to work with the nutritionists from the Great Plains Wheat, Inc., organization, and the local public health office.

While the lunchroom is being constructed, volunteer workers will be trained in nutrition and food preparation by a nutritionist from the Great Plains Wheat, Inc., organization. Health officials of the Peruvian government, through the Minister of Public Health, plan to make height and weight checks of the children before the pilot program gets underway, and again, after two years of operation.

The youngsters in Leticia are still being fed from huge kettles in the schoolyard. And the menu does not yet provide what we in America would consider an adequate meal.

However, the lunchroom is being built—the food is being made available—and it will not be long until these Peruvian school children can count on at least one good meal a day—and that meal, at school.



Prospects Look Bright For Adding More Fats in Feed

By HARRY O. DOTY, JR.

COMPETITION in the feed industry today is strictly between feeds that have added fat, say feed industry spokesmen. These are attractive words to the fats and oils trade. The practice of adding fats to animal feeds has brought new life to the market for these products and shows a large potential for growth.

Since World War II, the increased use of synthetic detergents has caused a decline in soapmaking—the major outlet for inedible fats and oils. Use of fats and oils in soap was 2,443 million pounds in 1947 after which a steady downward movement began. During 1960 only 939 million pounds were used for soap.

But, while soapmaking was on the decline, researchers were studying the effect of fats added to feeds. They found that most animal feeds were greatly improved by increased fat content. Further research by the U. S. Department of Agriculture's Eastern Laboratory solved the problem of rancidity and, by 1953, the practice of adding fat to feeds began to pick up momentum.

Soapmaking is still the biggest industrial market for fats, but the feed industry is in second place and growing. In 1960, over 500 million pounds of

fats and oils were used in feeds. And, if more feed manufacturers brought their use of fats up to common levels or mills not using fat adopted the practice, as much as 1.4 billion pounds could be used annually. The market could be still larger.

At the same time, nutrition research has shown that higher fat content in more kinds of feed would benefit the livestock and poultry industries.

Researchers in feed efficiency found that when fats are added to feeds along with higher levels of protein, an animal produces more meat or larger eggs from the same amount of feed. Young, growing-fattening animals benefit the most from extra fat in feed, so more fat is commonly added to feeds for turkeys, broilers, and calves.

Manufacturers are enthusiastic about fat added to their feeds mostly for mechanical reasons. Fat reduces dustiness, makes handling easier, cuts down wear on machinery, helps in homogenizing and stabilizing the fine-particled feed mixture, and improves the appearance of the finished product.

The lubricating effects of added fat are a special help in producing the increasingly popular pelleted feeds. Pelleting is a boon to livestock and poultry producers because pellets, having less

bulk, boost the animal's feed consumption and result in faster gains.

Fats are also useful in mash, which is still popular with many farmers because it is lower priced than pelleted feed. Much of the mash without extra fat is wasted in feeding because it is dusty and too easily scattered. Added fat controls these problems and also increases feed conversion.

The use of the feed and the price of fat determines how much fat the manufacturer adds. For example, commercial broiler feeds were usually found to have 4 percent added fat but some contained as much as 10 percent.

Studies in USDA's Economic Research Service indicate that as manufacturers gain experience in the use of fat, they tend to add it to more types of feeds and increase the amounts added. Generally, if fat prices were lower, feed men would add more fat.

Use of fats among the smaller mills is not as great due to lack of facilities and equipment to handle them. Less than bulk-lot purchases and higher costs for storing and handling fats cause the small operator to rely on dry sources of fat or restrict usage. Most mills not adding liquid fats are using expeller-processed oilseed meals containing some oil, as well as meat scraps, tankage, and poultry scraps to raise the fat level in their mixed feeds.

Totaling up their expenses, feed mill owners in general found that the cost of mixing was about the same for feeds with and without added fat. The advantages of more convenient mixing with extra fat were offset by the cost of additional equipment and lengthened mixing time.

Feeds containing additional fat were usually priced between 50 cents and \$2 more per ton. However, feed men generally agree that feeds with and without fat are comparably priced on the basis of calorie content.

The future of fats in feeds looks bright. The advantages of fat in the manufacturing process alone are enough to encourage its use. As more farmers discover that they get faster gains with additional fat in livestock and poultry feed, the feed market for fats and oils should grow.

A free copy of the full report, "An Economic Analysis of Fats Added to Feeds," MRR 498, may be obtained from the Information Division, Economic Research Service, U. S. Department of Agriculture, Washington 25, D. C.

The author is a staff member of the Market Potentials Branch, Economic Research Service, USDA.

AMERICAN PROCESSED FRUITS ON THE LONDON MARKET

By EDWARD R. THOMPSON and ROBERT C. GROSS

THE proprietor of the small grocery store in London, England, seemed a bit puzzled at the order we had been giving him—18 cans of grapefruit sections (including 3 different brands), 12 cans of peaches, and a dozen cans of fruit cocktail.

It was an unusual order especially in London. In this great metropolitan city, housewives shop almost every day in small neighborhood stores like this one. A typical order would be more like the one made by a customer ahead of us—a can of peaches, a loaf of bread, and a bunch of carrots.

Here we were, two Americans, buying 42 cans of fruit all at once. And we wanted the cans from different cases!

We did have a purpose, though. Both of us were USDA inspectors from the Agricultural Marketing Service's Processed Fruit and Vegetable Inspection Service. We were in London to com-

pare the quality of American processed fruit with the quality of fruit from other countries that ship to the British market.

The cans we were buying were part of the samples we would use in making our comparisons.

Most of our samples, of course, came from wholesale channels—chain store warehouses, wholesalers' stocks, and dockside warehouses. But we found it was easier to get some of the samples from little groceries like this one in Battersea.

The problem was this: American fruit has always had a reputation for highest quality in Britain. Recently though, we had begun to hear reports that our fruit was no longer the best on the British market. USDA's Agricultural Marketing Service and Foreign Agricultural Service were sponsoring our project to find out just what the quality of our products is when they reach Europe—

and how they measure up to the competition.

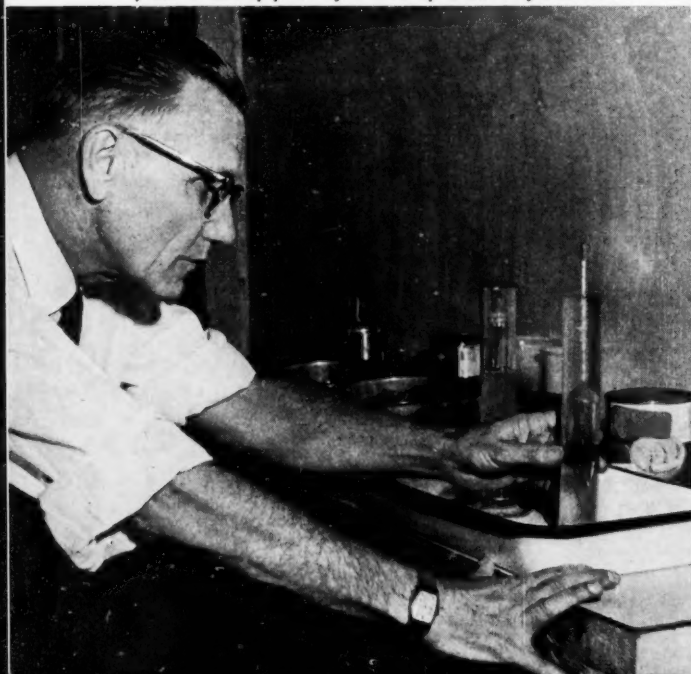
After we had talked the still-puzzled grocer into giving us cardboard cartons in which to carry our purchases (not a common practice in England), we headed back to our laboratory.

Altogether we examined more than 1,300 cans of fruit and 550 samples of raisins and dried prunes. We used the U.S. Grade Standards as our basis of comparison, scoring each sample as if we were inspecting it in the United States.

We drew one principal conclusion from these comparative studies: The quality of U.S. processed fruit is still high but the competition is tougher than it used to be.

We found the "quality gap" much narrower than it has ever been before. South Africa, Australia, Israel, and other countries have made tremendous strides in their processing methods and quality control in recent years, and they

Mr. Thompson determines the sweetness of sirup from a can of fruit by means of a Brix hydrometer.



Mr. Gross checks a sample of raisins for maturity and defects—important criteria in evaluating quality.





Comparisons of color variations in peaches are demonstrated by Thompson through use of the USDA (plastic) color comparator.

are shipping their top quality to the London market.

Take peaches, for example. South Africa has developed the Kakamus variety of cling peach that has outstanding color and texture. As a result, a much higher percentage of South African canned peaches met U.S. Grade A than did American peaches. In addition, South African peaches had a heavier sirup which the British trade prefer.

We had heard many complaints from the London trade about U.S. mechanical peach pitters and the damage they did to the fruit. We did find some "finger" marks on some of the U.S. peaches but these weren't as serious as we'd been led to believe.

Blemishes are more serious to the British consumers than to us, however, because of the way canned peaches are used over there. One popular dessert consists of peach halves imbedded in clear gel. As a result, any blemishes in the fruit show up all too clearly.

We have tough competition in canned grapefruit sections, too. Israel is

marketing grapefruit that is very close to ours in quality. Grapefruit sections also come to London from the British West Indies. While this West Indian grapefruit is more broken up than ours (because of type of fruit and peeling practices), it has a higher drained weight than ours.

American canned fruit cocktail, on the other hand, was easily tops in the British market. The American product was outstanding in uniformity, appearance, and quality. The fruit cocktail from other countries varied a good deal in the mixture of fruits used, and the quality ranged from very good to very poor. Often, the fruits were chopped rather than diced, or were diced in large cubes.

U. S. raisins also presented an encouraging quality picture. They were far above the Australian and Turkish raisins in cleanliness, as well as in most other quality factors, but not in maturity. Here, the Australian raisin was clearly superior.

We do have a couple of problems to

face, though, in marketing our raisins in Britain. First, British consumers are used to the bleached seedless raisins supplied by Australia and Turkey, rather than the natural sun-dried type which we produce.

Second, our raisins are not as free-flowing (that is, they are more sticky than competitive raisins), since U. S. Food and Drug regulations do not permit the addition of mineral oil. Bakers and other quantity buyers in London like a free-flowing product that is easy to use.

Overall, we found the United States is still marketing high-quality processed fruit in Britain. But we found stiffer competition, too, which means we'll have to be on our toes if we want to keep the shelves of London's grocers stocked with American processed fruit.

Mr. Thompson is a staff member of the Fruit and Vegetable Division, AMS. At the time of this survey, Mr. Gross was also employed by AMS but is now in private industry.

THE CHANGING MARKET



PIONEERING RESEARCH

Why does a potato turn brown after it has been peeled? What causes a bruised pear to become discolored? What causes fruits and vegetables to age? What causes fruits to ripen? What changes take place in fruits and vegetables during storage?

These are some of the questions under examination by scientists in the Agricultural Marketing Service's recently established Pioneering Research Laboratory at Beltsville, Md.

The research conducted in this laboratory may lead to better ways of maintaining the quality of fruits and vegetables in marketing, storage, and transportation.

These AMS scientists are after fundamental information about the life processes of fruits and vegetables. They get down to the very basics of plant structure, studying individual plant cells and particular tissues.

What specific kinds of research are being conducted in the Pioneering Research Laboratory?

Scientists know that a gas called ethylene is produced by fruits and vege-

tables which causes them to age and ripen. Knowledge of how this gas is produced, however, may help pave the way for a better means of controlling ripening in fruits and vegetables. AMS scientists, therefore, study the plant cell constituents to determine the gas-producing process.

They are also studying the activities of mitochondria in the cells of fruits and vegetables. This may help determine what changes these cell particles cause in fruits and vegetables after harvest. For example, the scientists study the activity of the mitochondria after harvest, and at later intervals after the fruit or vegetable has been in storage for a period of time. This provides information which may lead to better methods of maintaining quality in fruits and vegetables.

There are enzyme systems in the plant tissues that cause discoloration when fruits and vegetables are bruised or cut. For example, the cut portion of a peach will turn brown and potatoes darken after they are peeled. AMS scientists want to know the complete story of what causes the discoloration and what effect it has on the internal workings of fruits and vegetables.

Respiration in fruits and vegetables is also of interest. In some crops, chemicals are used to stop the growth processes by inhibiting their respiration. But in some fruits and vegetables only part of the plant tissue is inhibited by these chemicals. The Pioneering Research Laboratory scientists are trying to find the reasons for this difference.

This is basic research—not designed to solve any immediate problems—but to add to the sum total of knowledge so essential to the better maintenance of quality in fruits and vegetables after harvest.

When AMS scientists come up with answers to these problems, *Agricultural Marketing* will publish the results. But for more details, write the *Editor* and have your name added to our monthly checklist of reports issued.

TURKEYS

New spring bonnets and Easter rabbits will have to move over a little this April, attention-wise. For unusually large supplies of turkeys, selling at very favorable prices to the housewife, are also sure to catch the shopper's thrifty eye.

And turkeys—which head the Agricultural Marketing Service's list of plentiful foods for April—are followed by several other bumper-crop items whose prices are also expected to favor the family food budget. They are protein-rich eggs, and potatoes, two welcome standbys for any menu. And, for shoppers with a sweet tooth, freestone peaches and honey from last year's big harvest.

Milk production will be nearing its seasonal peak, so milk and numerous kinds of dairy products will be abundant. Vegetable fats and oils round out the list, with stocks of salad and cooking oils recently reported at an all-time high.

COTTON CONFERENCE

Cotton specialists from all over the world will meet in Washington, D. C., May 24 and 25 for the thirteenth Universal Cotton Standards Conference.

These specialists will discuss and approve cotton grade standards for the coming three years. The Universal Cotton Standards are used as the basis for world-wide trade in American upland cotton. Conferences are held every three years to approve key copies of the standards used by arbitration boards in the industry here and abroad, and by classing offices of USDA. These conferences also consider needed revisions of the standards and other problems in cotton standardization and classification.

The United States Cotton Standards Act authorizes the Secretary of Agriculture to enter into agreements with cotton associations, exchanges and other cotton organizations for the adoption,

- AMS Establishes Pioneering Research Laboratory
- Turkeys Featured on Plentiful Foods List
- Universal Cotton Standards Conference Meets in Washington
- Scientists Study Quality Factors of Cotton
- Meat Miracle Exhibit Touring United States

use, and observance of universal standards of cotton classification. The Department has entered into the Universal Cotton Standards Agreement with 14 major cotton associations in Belgium, England, France, Germany, India, Italy, Japan, Spain, Poland and The Netherlands. In addition to delegates from these signatory associations, approximately 50 industry associations in this country, including producers, ginner, shippers, exchanges, and manufacturers are expected to send representatives to the 1962 conference.

The International Cotton Calibration Standards Committee, represented by the International Federation of Cotton and Allied Textile Industries, American Cotton Manufacturers' Institute, American Cotton Shippers' Association, National Cotton Council of America, and the U. S. Department of Agriculture will meet May 22, 1962 at Washington, D. C. The Committee, which is responsible for the operation of the International Cotton Calibration Standards Program, will discuss several matters concerning policy and operating aspects of the program. This program is operated by the Cotton Division, AMS, under the policy and operational framework established by the Committee.

COTTON QUALITY

"Nearly every bale of cotton is different, just as almost every person is different." This is the thought with which a marketing researcher at the Agricultural Marketing Service Cotton Quality Research Laboratory approaches his work. And just as psychologists study people and their different behavior to determine how they can lead a more useful life, scientists are studying the quality factors of cotton to learn how it can be more useful to mankind today.

To a cotton mill owner, one important quality of cotton is a good resistance to breakage as it is spun into yarn. The textile industry measures this breakage

by counting "ends down"—that is, the number of times the yarn breaks in the spinning frame per thousand spindle hours of operation.

Just as modern life can change the personality of people, modern cotton harvesting and ginning practices can have their effect on processing performance. Therefore, marketing researchers at the Cotton Quality Research Laboratory at Clemson, S. C., are trying to relate cotton's past history with its spinning performance.

Cotton of known background is run under controlled conditions through the complete processing operation from raw cotton to yarn, and in some cases all the way to fabric. This shows scientists a relationship between the effects of the way cotton was handled and its spinning performance.

But just to establish a correlation isn't enough. The marketing researchers

are also working on a small scale spinning test for "ends down" that can be used in the industry.

If the researchers can develop this test (results are good so far), mills, gins, and farmers could have a more meaningful benchmark for pricing cotton. In other words, the different "personality" factors of the cotton could be identified.

"Ends down" is not the only quality problem the marketing researchers are studying at Clemson. Some time this year the laboratory expects to open an instrumentation research section. This facility will test and evaluate various commercial instruments and their ability to measure important fiber properties that contribute to processing performance and product quality.

At the same time new work will be started by chemists and other scientists aimed at learning more about cotton quality factors.



THE CHANGING MARKET

WORLD FOOD FORUM

National and international food and agricultural authorities will meet in Washington, May 15, in a World Food Forum inaugurating the Centennial observance of the U. S. Department of Agriculture.

In addition to international agricultural authorities, invitations will be extended to U. S. leaders in science, agriculture, industry, labor, education, communications, land-grant colleges and universities, and Government. Special emphasis will be given consumer and urban interests.

"In view of the national and international stature enjoyed by American agricultural achievement, the World Food Forum will be an especially fitting means of beginning the Department's Centennial observance," Secretary of Agriculture Orville L. Freeman said.

"I am proud to be Secretary of Agriculture at the time the Department will be completing its one-hundredth year of service to our Nation," he continued. "This will be an occasion for all of us to reflect upon the blessings that have come from the richness of our land and the skill of our people."

During the Centennial observation, Mr. Freeman pointed out, we shall undertake to tell all Americans about the great contribution our farmers are making.

USDA's Centennial coincides with that of the land-grant universities and colleges. These institutions, closely associated with USDA in the development of American agriculture, will be celebrating the 100th anniversary of the Morrill Act. This Act founded a new concept in publicly supported higher education, and established a pattern of Federal-State relationships in agriculture which has served as a model for



Growth Through Agricultural Progress

other cooperative activities both at home and abroad.

Many events will be jointly observed by the U. S. Department of Agriculture and the land-grant colleges.

MEAT MIRACLE

The "Age of Miracles" may have passed, in some ways—but it's just hitting its stride in American agriculture, as in our recent orbital achievements.

And to illustrate the point, the U.S. Department of Agriculture has built a 1,000 sq. ft. flexibly-arranged traveling exhibit to be shown to food buyers across the country. Its title: "Meat Miracle."

"When we talk about meat, we almost have to say 'Meat Miracle'," said Secretary of Agriculture Orville L. Freeman, in explaining the exhibit. Not only is meat better than ever, he declared, but it is also cheaper in terms of the labor needed to earn it.

Meat is indeed a bargain in good living. Despite rising prices, we get more meat for our labor today than ever be-

fore. For example, in 1961 it took a wage earner only 27 minutes to earn money to buy one pound of round steak. But in 1909 it required 52 minutes of working time.

Wage earners and their families who attend the various State Fairs will be the major audience for this "Meat Miracle" exhibit. They will be able to get answers to their questions about meat quality, how to cook the meat when they get it home, and many others.

The exhibit tells the story of the feed and care given livestock, which has, perhaps, been the greatest influence on meat quantity and quality. The corn-and-water fattening ration of yesteryear is completely out of place in today's miracle of meat production. Carefully balanced rations, fed by automatic equipment in feedlots designed for efficient feeding comfort of livestock, pay off in better steaks, roasts, and other meats for our table today.

Better meat and less cost—greater management efficiency—more lean meat—all these are a part of our modern meat miracle that scientifically tailors meat to fit every consumer taste.

What Secretary Freeman calls "some hard economic facts—not just suppositions" conclude the exhibit. For instance, an hour of factory wages will buy 37 ounces of round steak these days. Fifty years ago it bought only 18 ounces. And meat is a bargain when we look at other countries, too. In England today, an hour of factory wages buys 18 ounces of round steak; in France, 7 ounces. And the Russian factory worker can buy only 4 ounces of round steak with an hour's wages.

According to Mr. Freeman, "The Meat Miracle" is just one example "of what we seem to have to prove to American consumers: American food is a bargain."

